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# LOUISIANA
# conservationist

JANUARY—FEBRUARY, 1974

# ...comments

**I hold that man is in the right who is most closely in league with the future.**
**—Henrik Ibsen**

J. Burton Angelle, Director

Now that the big holiday season is over and a new year has been ushered in, perhaps it is appropriate in these remarks to look to the future months. I have little doubt they will be filled with challenges and I am certain that those of us who are so vitally interested in wildlife, conservation, and environmental improvement will welcome those challenges. This is true because without the prospect of new programs, acceleration of existing programs, and expansion of Commission activities, there would be no progress.

In looking forward to the new year, I feel it is wise to glance back in retrospect and evaluate what has been accomplished in the year that now belongs to history. In doing so, it brings into sharp focus some of the programs and projects that should receive emphasis in the months ahead.

It is gratifying to report that the Commission's land acquisition program is going ahead steadily. Whenever suitable lands are found and funds are available, additional tracts should be purchased by the Commission and dedicated for all time to outdoor recreation in the forms of hunting, fishing, camping, hiking, bird watching, nature study and related outlets for recreation in the outdoors. The demands for such lands are increasing each year.

At the same time, available lands are diminishing. The present program is a satisfactory one but every effort should be made to accelerate that program. In less than a decade I feel that suitable lands for wildlife management areas will be priced beyond our ability to obtain them. We must act as swiftly along this line as possible. It may well be that additional interest can be further stimulated in the Legislature and in the Administrative branch of state government. The Commission will need full public support in this matter, as well as in other programs. We hope that it will be forthcoming when called for.

Our enforcement personnel were issued new uniforms during the past year and I believe this has had two distinct and obvious results. New uniforms have brought about greater respect for enforcement personnel on the part of the public. They have also raised the morale of the Enforcement Division. I do not feel that it is necessary to stress that new public respect and higher morale are important factors in deterring game and fish law violations. It has always proved true with other enforcement agencies and this is true within the Commission.

In the past year, the Commission has also accelerated its many research programs. These command both national and international respect. There is no reason to believe these programs will not be broadened in the months ahead. It is difficult to single out all of the research programs that have attracted national attention, but certainly the alligator research program is the most comprehensive in the world. It may mean the difference between having the American alligator relegated to the ranks of an endangered species by persons who have in the past been misinformed or not properly informed on the true place of the American alligator as a renewable and valuable wildlife resource.

Also, the Commission's striped bass program has progressed smoothly and even more evidence of its success can be anticipated in the year ahead. Several other states have requested and received our data on striped bass. This is a compliment and appreciated; but there is much more work to be done and we look forward to even greater progress this year.

Worthy of note is that the program of re-establishing the Brown Pelican, our official State Bird in Louisiana will also show gains during the next six months, following the breeding season.

It is certainly true that much of the progress anticipated by the Commission in the year ahead will be hinged directly to a properly-funded Commission. I think that considerable progress has been made and the Commission is deeply grateful to Governor Edwards and the Legislature. I can not help but feel that there is a better understanding of the many facets of Commission operations today than existed about two years ago. This new image is in our favor, but again we must have public support in our efforts to foster this new understanding.

In conclusion, I feel that the morale of the Commission is at a new high level and the tight ship that is being run has a capable and dedicated crew. With everyone putting their shoulders to the wheel, there is little doubt that 1974 will be a year of continued, constructive and gratifying progress for the Commission.

# LOUISIANA conservationist

Published bi-monthly by the Louisiana Wild Life and Fisheries Commission in the interest of conservation of Louisiana's natural resources.

*I give my pledge as an American to*
*save and faithfully to defend*
*from waste the natural*
*resources of my country—its soil*
*and minerals, its forest, waters*
*and wildlife.*

**EDWIN W. EDWARDS,** Governor

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# Louisiana Marshes Need Management

By McFadden Duffy

Photography by
Lloyd Poissenot

**One who stands and surveys the Louisiana marshes waving sea of green and gold grasses brushed by winter winds or relatively unruffled lush green hip-high meadows of assorted aquatic plants and grasses in the spring assumes that the marshes are the same as they were centuries ago. They do not know that drastic changes are taking place in the Louisiana marshes and that the time for sound management of this rich heritage is overdue.**

Louisiana's coastal marshes have long been recognized as one of the most productive wildlife areas on the North American continent. This unique distinction is primarily the result of varied plant communities that exist along the state's coastal parishes, attracting millions of migrant waterfowl, shore birds and song birds, as well as a wide variety of resident animals that include muskrat, nutria, raccoon, otter, mink, deer, rabbits and bear.

For generations this surface wealth of wildlife has been taken for granted. Naturally, there have been lean years for the fur trappers as well as for waterfowlers; but these have been accepted with only temporary concern through the decades because the marshes are so vast that they have withstood the ravages of countless hurricanes, massive tidal flooding, and have proved indestructible.

Even though far-flung inroads into basic marsh ecology resulted from the discovery of fabulous deposits of subsurface wealth in the form of oil, natural gas and sulphur, there persists a general feeling that Louisiana's marshes will continue to flourish with renewable wildlife resources long after the non-renewable sources of sudden wealth are exhausted.

Nothing in Louisiana, people think, is as valuable as the coastal stretch of marshes—indented with the world's most extensive and valuable estuaries. It will take countless generations for any area of the state to equal in dollar value the sub-surface wealth of the marshlands, and the renewable surface wealth in the form of wildlife and fisheries.

Jolting as it may come to many who consider the state's marshes as a perpetual resource, there is an inexorable, unyielding cancer gnawing away the salt marshes that fringe the shores of the gulf, and are the southernmost edge of the vast marsh belt itself. A detailed study, conducted in the late 1960's, revealed that in many areas the salt marshes have moved inland as much as 12 miles since the late 1930's, and further revealed that there is an annual loss of approximately 16,500 acres to subsidence and erosion.

These changes are becoming more and more noticeable to ecologists working in the coastal marshes and isolated communities. Reference is made to those communities adjacent to the Houma Navigation Channel and south of Port Sulphur where the marshes are deteriorating at an alarming rate.

Bob Dennie

This drastic change in the marsh ecology will undoubtedly have an influence upon wildlife species dependent upon it for survival, and also the human inhabitants living in those areas especially during hurricanes. The robust vegetation which formerly grew in the marshes contributed substantially to slowing down the rate of storm tides which have buffeted the Louisiana coast for thousands of years.

Because of this increasing change in the geographical structure of the marshes lining the coast, it is reasonable to assume that future hurricanes will be much more detrimental because of the loss of this natural protection, permitting a much more rapid penetration through wind-driven marshes into residential areas along the coast.

In stressing the need for immediate steps toward total marsh management, perhaps it would be best to take a quick glimpse at the basic structure of Louisiana's marshes, what has taken place in those marshes in the past four or five decades, and what conditions that are now apparent indicate must be done as quickly as feasible.

Louisiana's marshes have been divided into three wide descriptive zones. They are the prairie marshes, subdelta marshes and the delta marshes, each with characteristics that set them apart as to the type and amount of wildlife they can support, but collectively part and parcel of the sprawling composite of grasses and aquatic plant life that is referred to as Louisiana's marshlands.

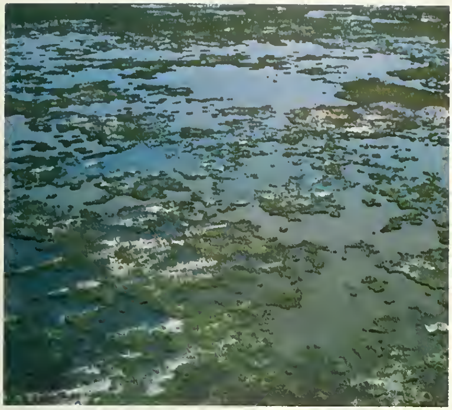
The prairie marshes are located in the southwestern part of the state and are the oldest from a geological standpoint, varying in age from 8,000 to 15,000 years. These are the most desirable marshes, and until recent years the least-influenced by man's activities.

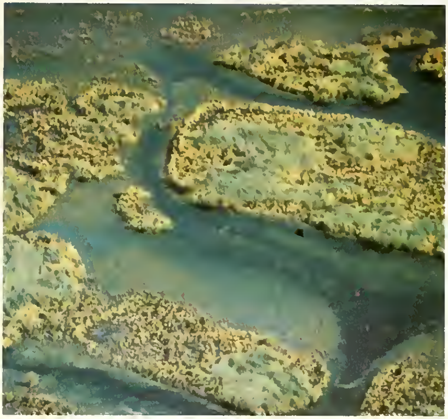
The sub-delta marsh extends along the remainder of the coastal belt of parishes from Vermilion Bay to the mouth of the Mississippi River.

The delta marshes are individual in that they exist in that immediate area around the active mouths of the Mississippi River. Because of this characteristic factor, the delta marshes constitute the smallest in acreage of the three basic zones.

When the first settlers arrived in Louisiana they found a wide expanse of marshland, intersected by meandering bayous and bays along the coast. As they progressed inland, the marshes were broken by occasional bayous with land elevations adjacent to them that were just high enough above sea level to support cypress and bottomland hardwood forests. These were the relatively high areas that were initially settled. The forested areas were cleared to permit farming.

At that time the entire Louisiana delta was subject to annual flooding by the Mississippi River during high water stages. This annual phenomenon distributed fertile soil into the marshes and played an important role in maintaining plant communities. It was not something new. For centuries the great river has drained the heartland of America and deposited its rich topsoil in Louisiana. During the settlement of what is now some 20 states making up the great Mississippi Valley, the silt-laden river carried progressively more and more of the rich soil from those lands that were cleared for farming and subject to erosion and run off.





**Above. The prairie marshes, located in southwest Louisiana are the oldest and most desirable marshes, and until recent years the least-influenced by man. Right. The sub-Delta marsh extends along the belt of coastal parishes from Vermilion Bay to the mouth of the Mississippi River.**

This natural pattern was gradually disturbed by man's activity along the stream banks. As always, when man starts to bring about changes in ecological systems, the rapidity of change is hastened by population growth. It can be truthfully said that more changes have been made in the past 50 years than in the preceding 300 years.

The one single change that has had the most disastrous influence in the general ecology of the Louisiana coast was the construction of the Mississippi River guide levees to provide flood protection. Everyone recognizes the need for this protection in modern society, and the greater need that will be obvious as populations increase in the cities and communities that are nestled or sprawled behind the safety of the levees.

This is also true of protection of new and expanding industries that are attracted to Louisiana's ample supplies of petroleum, natural gas and sulphur—prime ingredients for the ever-expanding petro-chemical industries — as well as the flow of natural resource products from all over the world through the Port of New Orleans. Everything from bauxite to feed the aluminum industry to imported petroleum to feed the refineries—all contribute to this demand for protection levees.

Last year's record flood waters and the devastation that literally blanketed Louisiana will certainly give the green light to accelerated levee bolstering, not only along the big Mississippi River but also along the many tributaries that feed the big river.

In retrospect, biologists, ecologists and wildlife and fisheries managers say that provisions should have been made to allow for the orderly distribution of fresh water out of the Mississippi River into the historically important channels so that fresh water, rich with nutrients, could be introduced annually into the marsh-estuary complexes.

While this is true, it can be likened to closing the barn door after the horses have left for the pasture. And, ironically, the big green levees are not the only contributing factor to what has taken place, and is still taking its toll of Louisiana's marshes.

Fast on the heels of construction of the Mississippi River levees and other levees came the construction of thousands of navigation canals in the marshes for mineral development and other uses. During the early stages of this channelization of the marshes, little or no concern was given to marsh ecology. Consequently, in the rush to seek out the sub-surface mineral wealth of this vast area, many canals were constructed long distances across prime marsh areas strictly as a matter of convenience to reach drilling sites, rather than follow natural water courses. It was the mad rush for black gold and the associated minerals that hastened the straight canals to drilling sites, creating a lacework of interlocking waterways in an area that previously had been only loosely connected by natural streams and bayous. The old axiom that a straight line is the shortest distance between two points applied to getting men and materiel to drilling sites. At that time, no one stopped to think about the future.

It is also true that trappers and hunters have long utilized oil company canals and pipelines, thus increasing the problems of salt water intrusion, drainage and turbidity in the marshes. In cutting trapping and hunting ditches into the canals and bayous without installing water-control structures to regulate water movement, the damage to the state's marshes was intensified.

Since almost every acre of the southeastern part of the state's marshes have been directly influenced by these conditions, productivity of these marshes for wildlife has gradually deteriorated to the point where many marshes that were prime habitat a decade ago have now been changed into salt water areas unproductive for hunting, a fact of growing concern particularly to waterfowlers.

In managing marshes for hunting recreation and production of furbearing animals, it is important to remember that the food plants which attract these species should be viewed in the same light as agricultural plants for production of domestic animals.

It has become apparent that an annual management program must be followed in order to create conditions suitable for plant growth. Various techniques to accomplish this goal have been devised as a result of marsh studies conducted by the Commission. Certain management approaches, to a large degree, are dependent upon the type of marshland one is interested in bettering through management.

The prairie marshes of southwest Louisiana are firm high marshes well adapted to production of vast stands of wild millet and other seed-producing plants. The management key to producing these plants on an annual basis is to install levees and water-control structures capable of removing water from the marsh surface each year in May to permit germination of seeds, and to prevent excessive flooding during the first weeks of plant growth. There is nothing complicated about the water-control structures mentioned. They are relatively inexpensive but should be versatile in design so they can be utilized in the fall to reflood the marsh area and create a suitable water depth to attract wintering waterfowl.

In the sub-delta marshes, this type of management is limited to the higher marsh zones along the natural levee system adjacent to the old distributary channels, or in artificially created water areas where pumps are installed to de-water those areas. The most practical management approach in the sub-delta marshes is the installation of weirs or modified weirs with automatic flap gates. The primary food plants produced with use of this type of structure are aquatics. Widgeon grass undoubtedly is the singularly most important waterfowl food plant in the coastal marshes. This plant tolerates a wide range of salt conditions; however, it is quite sensitive to water fluctuation and turbidity. Generally speaking, an established water depth of from 12 to 18 inches, with no more than a one or two inch daily variation in depth, is the most desirable condition for its production.

The sub-delta marshes have been more drastically affected by the various influences exerted by man than any of the other marsh zones. As mentioned earlier, in many areas the salt marshes have moved inland as much as 12 miles since the late 1930's, and are being lost each year at an average of 16,500 acres to subsidence and erosion. This is certainly grounds sufficient for immediate marsh management programs.

As for the active delta marshes, concentrated around the mouths of the Mississippi River, it was the explosive search for minerals that soon saw the damage done by the heavy hand of man across the land. Because of the fluid nature of the active delta oil exploration and production of these minerals through marine facilities, requiring canals which must be dredged perodically to remove accumulated silt, visible damage to the marshes is plain.

High speed crew and work boats have also had a direct influence upon the banks of river passes in the lower delta, and have contributed to widening of both natural and man-made openings. This consequently has changed the entire distributary pattern of silt-laden waters on the active delta. Additionally, the physical location of the existing delta has also made maintenance and perpetuation of the delta-complex an almost impossible task.

This can best be explained by pointing out that deep water exceeding 1,000 feet exists within just a few miles out of South Pass, where the continental shelf is closest to land than at any other point along the northern Gulf of Mexico. It is at this drop-off that the"bottom falls out" and in those depths are the big game fish such as blue marlin, white marlin, tuna, wahoo, sailfish and bull dolphin that have made Louisiana one of the international hot spots on the long big game fishing trail that wanders around the world.

Annual dredging of the navigational entrances at South Pass and Southwest Pass has caused billions of tons of rich silt to flow out of the passes into the deep portions of the gulf annually. For all practical purposes this silt-soil is lost to the marsh building process except for lighter particles and nutrients that are swept to the west at the mouth of the river, skirting the northern gulf shoreline, and into the Barataria Bay - Timbalier Bay estuary system.

Perpetuation of the active delta is directly dependent upon annual flooding of the marshes with subsequent deposition of silt as the river flows over the banks of passes and into the still waters of adjacent marsh areas and ponds. High river stages such as the ones that were experienced during the winter of 1972 and the spring of 1973 are extremely beneficial to the delta marshes and wildlife species dependent upon these marshes for their existence. The silt-laden marshes have a detrimental influence upon the aquatic plant communities initially; however, after the material becomes flocculent and settles into the river-flanked ponds it produces the most fertile areas on the continent and spawns vast stands of aquatic plants in ponds, and excellent emergent plants such as delta duck potato and fresh water three-corner grass on the pass banks and mud flats.

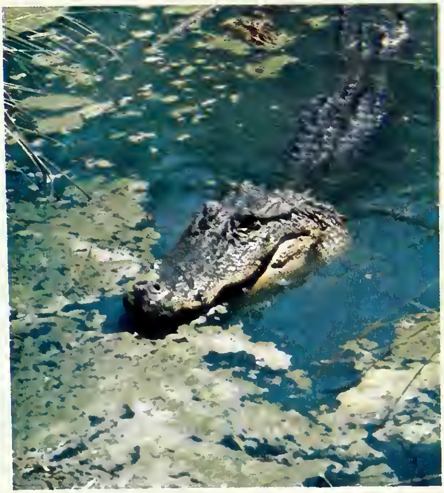
Marsh management for wildlife production is not a complicated matter. Basically it is one of dedication on the part of the marsh manager to create and maintain a set of conditions suitable for the production of desirable plant communities. This necessarily requires an annual program of marsh management.

Many waterfowlers, for example, never visit their marshes between hunting seasons and yet expect to have high-quality hunting without making any effort to manage their leased or owned areas. With the increasing problems associated with salt water intrusion, erosion and subsidence in the Louisiana marshes it is going to become ever-increasingly important that management be applied to create suitable conditions for wildlife, or the marshes so long heralded as the fabulous wintering ground for migratory wildlife, resident wildlife, and both recreational and commercial enrichment will be lost.

In all fairness, it should be reported that many of the early man-made canals and open pipe lines that initiated damage to the Louisiana marshes during the early rush for mineral exploration and production have been changed as a result of awareness of the damage and possible destruction of countless thousands of acres of marsh. Many have become dead end canals and many pipe lines have been covered. The Commission and many large landowners have established ground rules for methods of access to potentially rich oil, gas and sulphur deposits. What happened along those lines can and is being mended, or prevented. Louisiana will have to live with levees, and it is highly probable that these will become even greater and more dependable as the fear of flooding is fanned by events that occured in 1973.

On the other hand, there are avenues of management open to those who wish to see the Louisiana marshes abundant in wildlife and restored to their rightful position as areas in which renewable resources will always be present—as they were for centuries past and can be in the future.

(Editor's Note: This article on marsh management has accented the role of Louisiana's marshes in providing wintering habitat for migratory waterfowl and resident game, as well as furbearing animals. Because the priceless estuarine areas of the coast are so closely hinged to the marshes, their role in fisheries management will be dealt with at length in a spring issue of the **Louisiana Conservationist.**)



# Lake Management.....

## A Must For Better Sport Fishing

**By Charles E. Hoenke**
Fisheries Biologist District I
Photography by
Lloyd Poissenot

Sportsmen have come to accept one truism that has been driven home to them by wildlife biologists. That is, an acre of land set aside for wildlife will have its maximum carrying capacity only if it is managed for wildlife. Hunters, in particular, have accepted this doctrine and seen the results in their field efforts. They know that better hunting results from management. This is true of most game species, from deer to quail. But what about sport fishing?

All too often, quality sport fishing in Louisiana is taken for granted. When fishing trips are successful, anglers are inclined to believe that they "hit the right area when the fish were biting." If the trip was not too successful they are inclined to write off that particular day with shrugs of their shoulders, blaming it on "a bad day with the fish not biting."

Deep down in their convictions is a well-established fallacy. They take sport fishing for granted and assume it is a never ending resource. They'll readily admit that some places are better than others, yet attribute that fact to some vague reason that isn't worth becoming greatly concerned with. Some fishermen will assume that the really productive spots were better stocked to start with and that is why they produce catches worth bragging about. Others write off the poor areas with an emphatic assumption that "the place has been fished out."

There are always two sides to every coin. Fisheries biologists hasten to point out that quality sport fishing in Louisiana has been taken for granted as a never-ending resource. They will agree that in their natural state Louisiana's lakes, bayous, and rivers did produce sport fish as well as commercial fish in numbers that seemed to be inexhaustible.

Yet, as fisheries habitat was altered by flood control, drainage, increased pollution, and general land use changes, the natural nursery areas were reduced in size and numbers.

Ironically, many of the dams built for flood control created stable impoundments which for a few years were a boom to sport fish production. Now, fisheries biologists have these impoundments, along with their initial amazing sport fish production, fully understood. Fisheries development in those areas follows such a visible pattern that biologlists can almost predict when the boom will be over and the leveling off period will begin.

They found through research that these impoundments followed the typical pattern for any stable water body. Production of sport fish was great and then fish production declined. This is due to available nutrients being tied up in the hydrosoil and becoming unavailable to the food chain.

Also, when a stable water level is created, noxious aquatic vegetation becomes a problem, in turn causing fish populations to become unbalanced. The entire pattern is as plain to fisheries biologists as that of a simple cloth design. There is nothing complex—except that it has to be understood.

In areas where the fishing has been exceptionally good for sport anglers but suddenly shows definite signs of falling off, with more "bad days" than "good fishing days," the first cry from fishermen is for a stocking program. This isn't the answer and never will be. Biologists are quick to point out that an acre of water can be compared to an acre of land, in that it will support only so much life without proper management. This is something that has not been grasped fully by many sportsmen who have already accepted the management angle when it comes to producing maximum game populations on land.

The question then comes up: "What can fisheries biologists do in a case like this?"

The answer is a definite one, with certain procedures that must be followed. Prior to making any management recommendations, the existing fish populations must be known. There are two major tools available to fisheries scientists to determine fish populations. One is fish population samples using chemicals to kill fish so an actual count can be made. The other is a series of creel surveys to determine the harvest by anglers.

The latter is not utilized at present in Louisiana because of the large number of trained personnel necessary to conduct valid creel surveys. Consequently, Commission personnel are using the chemical application to determine the populations of fish and the species present.

At the present time approximately 50 percent of the areas indicating a need for sampling have been covered. To fully "manage" Louisiana's waterways a one-acre sample per 1,000 surface acres is needed. That a full sampling program presents a challenge is evident when one considers the hundreds of thousands of acres of water in Louisiana.

To be specific about chemical sampling, when it has been determined that an area is suspected of having fish production problems severe enough to warrant corrective action, lake management personnel make an initial fish population survey using 5 percent liquid rotenone. Random sites are selected for sampling.

Then biologists put a block-off net around approximately an acre and 5 percent liquid rotenone is pumped in-

Commission biologists place a block-off net in a portion of a lake for sampling purposes.

The five percent liquid rotenone is premeasured for pumping into the one-acre test area.

to the sample area at the rate of three pints per acre foot. As the chemical takes effect and the fish become distressed and surface, they are sorted into species, weighed and recorded. The holding net is left in place over a 24-hour period to assure that the sampling will be complete.

If the sampling proves that the fish population is out of balance, or no fingering production was found, we know that some type of corrective action is necessary.

Fisheries biologists today believe that water fluctuation is the major corrective program that can be advanced. Before such a program can be initiated, the physical features of the area are examined to see if the area lends itself to such a program. Unfortunately, all impoundments are not of such a design to allow fluctuation.

If a fluctuation program is decided upon, it serves as a multiple tool. As the water acreage is decreased, fish are concentrated and this allows predatory fish to easily reduce the forage fish. Also, the lowered water table exposes aquatic vegetation. Decomposition of organic litter on the bottom begins providing some usable nutrients when the impoundment is refilled.

In areas having obnoxious vegetation problems, mature vegetation is killed through a drying process and usually gives four to six weeks of additional weed-free fishing when the water level returns to normal. The fluctuating water level plus improved habitat stimulates brood fish into accelerated spawning activities when the impoundment refills to normal level.

Although fisheries biologists maintain that water fluctuation is the best method to improve impoundments and some large lakes, this type of program does not always meet with general approval. There are many reasons brought forward by some anglers when water levels are lowered. Some say that the scenic values are destroyed. Others complain that it is difficult to get their boats into water areas that

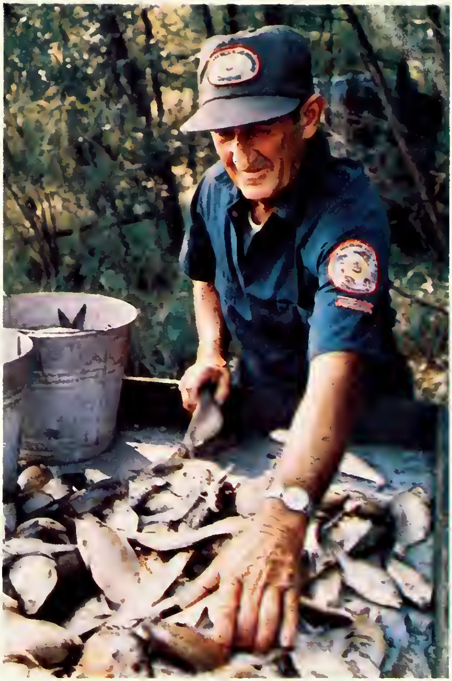
As the chemical takes effect and the fish surface, biologists gather them from the water for examination.

are drawn down. The reasons multiply with the extent of the draw down and the number of fishing camps that may be located around the lake or impoundment. Many heated voices are raised in protest against fluctuation, but they are generally raised by those who have something other than improved fishing at stake.

Fisheries biologists are quick to point out that no two areas of water in Louisiana have the same production potential. Natural lakes in overflow areas and oxbow lakes are the most productive areas in the state both for sport fish and commercial fish. Impoundments less than five years old rank second, and impoundments over five years are last. The following table is indicative of the various water types and fish production in Louisiana, but the areas represented in the table are only a token sample of lakes and streams being sampled each year by the Fish Division of the Commission.

The poundages given in the table should have creel data to supplement them, but they serve as a representative of certain water type areas to produce fish.

This brief glimpse into lake management and some of the tools employed by fisheries biologists to determine why hot spots taper off, why oxbow waters and natural lakes subject to overflow continue to produce sport fish, should provoke thought among sport anglers when they ponder about their favorite fishing area. Is it overfished and "ruined?" Is it tapering off in catches worth bragging about because of "habitat changes?" Or, does it need management?



Sampling involves sorting the fish into species, weighing them, and recording the information.

| BODY OF WATER | TOTAL POUNDS PER ACRE | POUNDS OF GAME FISH PER ACRE | TYPE |
|---|---|---|---|
| Bistineau | 104.53 | 50.22 | Impoundment Over 5 Years Age. |
| Ivan | 138.76 | 62.84 | Impoundment Over 5 Years Age. |
| Black Bayou | 98.29 | 40.77 | Impoundment Over 5 Years Age. |
| Lake Bruin | 175.93 | 104.42 | Oxbow. |
| Lake St. John | 443.06 | 259.90 | Oxbow. |
| Cocodrie Lake | 231.92 | 111.49 | Natural, And Subject To Overflow. |

The poundages given in the table should have creel data to supplement them, but they serve as representative of certain water type areas to produce fish.

# Pie's POTPOURRI

By: Marian "Pie" Pendley

Mrs. Ellen Bryan Moore, Register of State Lands, is well known in state government circles, having served in that capacity since 1952. She laughingly says she had her introduction into the inner workings of state government by "listening at a keyhole", as her father served under seven governors and their home was the meeting place for many major discussions of political importance.

When asked about recipes for game, she is quick to answer "Some modern cooks are at a loss as to how to prepare game when it is given to them. But wild game may be used in a variety of dishes."

The Moores have a few special recipes they all enjoy and one of them is for venison burgers. "They make the basis for a great meal with us, and for those weekend suppers they're quick and easy to fix. L'Mell, one of my daughters, enjoys cooking and this is the way she prepares her specialty."

## VENISON BURGERS

**1 lb. ground venison**
**½ lb. ground pork sausage**
**1 tbsp. dehydrated minced onion**
**1 tsp. garlic powder**
**2 tbsp. Worcestershire sauce**
**1 tsp. liquid smoke**
**1 egg**
**½ cup condensed milk**
**bread crumbs**
**salt and pepper to taste**

Combine meat with seasonings and mix well. Add egg and condensed milk. Add enough bread crumbs to make mixture hold together without being sticky or dry. Season to your liking. Shape into 6 medium patties and broil, fry, or charcoal grill as you would hamburgers. Top with sliced cheese in the last minute of cooking if you prefer. Serve on toasted sesame buns with your favorite additions to round out a different and highly satisfying meal.

These special "burgers", along with He-Man Potatoes are hearty and filling and men are particularly fond of them. The potatoes can be made ahead of time and stored in the refrigerator until just before time to eat.

## HE-MAN POTATOES

**1 bag frozen hash brown potatoes**
**1 lb. cheddar cheese (sharp)**
**1 onion chopped**
**1 large bell pepper (chopped)**
**flour**
**salt and pepper**
**milk**
**butter**

Preheat oven to 350° and grease casserole dish with butter or margarine. Combine potatoes, cheese, chopped onion and bell pepper and mix well. (Cheese should be grated or cut into small pieces.) Add enough flour to coat mixture and toss as you would a salad. Add salt and pepper to taste. Pour enough milk into mixture to fill casserole dish about ⅔ full. Dot with butter. Bake at 350° for 30-60 minutes. (This dish is hard to overcook in case guests are late.)

Her husband is not a sportsman but because of the generosity of her friends and her son-in-law, Gary Spurlock, Mrs. Moore usually has some wild game in her freezer. Gary's contribution to the family gatherings is often roasted rabbit. He has his own recipe and prepares it this way:

## GARY'S POT ROASTED RABBIT

**1 wild rabbit**
**4 strips of bacon**
**1 medium can mushrooms**
**1 tbsp. butter**
**1 cup chopped onion, bell pepper, celery and chives (mixed)**
**2 cloves garlic**
**salt and pepper**
**2 tbsp. chopped parsley**
**½ tsp. each, sugar, dry mustard, Worcestershire sauce**
**1 cup or 2 cubes chicken or beef bouillon**
**a small amount of Sherry**
**a small amount of cooking oil**

Sprinkle seasoned rabbit with vinegar and let stand for an hour, turning occasionally. Then rinse and wipe dry. Cut into serving pieces and rub lightly with garlic, salt and pepper. Cut bacon into 1-inch pieces, brown in iron pot, remove and set aside. Lightly flour rabbit and pan fry until well browned, adding as much cooking oil as necessary. Remove rabbit; pour off excess oil, retaining about 1 tbsp.; saute onions, celery, bell pepper and parsley. Meanwhile, brown mushrooms in butter. Return rabbit to pot, adding mushrooms and ½ cup liquid. Cover and simmer slowly 1 to 1½ hours. Turn rabbit occasionally, adding liquid as necessary. Return bacon to pot. To make gravy, remove rabbit from pot and add rest of ingredients, add more liquid with flour to thicken, enough to make about 2 cups gravy. Simmer about 15 minutes and serve with rice.

In addition to family gatherings, the Moore home is the scene of many other social activities. Showers, teas, coffees, receptions . . . all are part of the entertaining pattern of the Moore household. Once a week usually finds some sort of party in progress. Mrs. Moore is ready to entertain at the drop of a hat, she says, but through the years has found that short cuts are the real secret in making entertaining easy. Cheese Straws and Olive Cheese Balls are referred to by her friends as MOORE'S MORSELS and they go like this:

## CHEESE STRAWS

**3 sticks butter**
**3 cups sifted cake flour**
**1 cup sifted regular flour**
**1 lb. extra sharp cheese (grated)**
**1 tsp salt**
**1 tsp cayenne pepper**

Cream butter, add flour, salt and pepper, then add cheese. Mix well and put through cookie press (bar). Bake in strips at 350° about 10-15 minutes. Take from oven just as they begin to turn darker and cut into small lengths while warm. Store in tins.

## OLIVE CHEESE BALLS

**2 cups grated sharp cheese**
**½ cup soft butter**
**1 cup flour**
**½ tsp salt**
**½ tsp paprika**
**1 Jar stuffed olives**

Blend 2 cups of grated sharp cheese and ½ cup of soft butter. Sift and stir into the cheese butter mix 1 cup flour, ½ tsp salt and ½ tsp paprika. Wrap one teaspoon of this mixture around a stuffed olive. Coat additional olives until mixture is completely utilized. Freeze. When ready to use, do not thaw. Bake in 400° oven 10-20 minutes. Makes 50-60 olive cheese balls.

Mrs. Moore lists among her hobbies buying and restoring old homes. She points with pride to an impressive number of residences in the Baton Rouge area that she has had a hand in restoring to their original state. In everything she says and does, her love for Louisiana . . . with its flamboyant politics, its venerated traditions, its unique cuisine . . . is evident. And for the latter, its cuisine, she says "l'Etat du plaisir des gourmets et d'appétit satisfaits." Translated, this means "The state of wonderful food and satisfied appetites." Her salute to Louisiana is as warm and satisfying as her favorite recipes.

# BLACK BAYOU LAKE

## [Ouachita Parish]

JANICE S. HUGHES
*Fisheries Biologist*

Black Bayou Lake is located 5 miles north of Monroe in Northeast Louisiana. This 2,000 acre lake has an average depth of 6 feet and is connected to Bayou DeSiard Lake via Hanna's Run. At the present time the water flows between these two lakes through culverts located under the Arkansas and Louisiana, Missouri Railroad at one end of Hanna's Run and a dam located at the other end of the Run. The water level can be lowered only 3 feet in Black Bayou Lake due to the high location of one culvert. Future plans include a trestle for the railroad and a control structure at the dam which can be used to lower the water level in the lake 8 feet if necessary. This water level fluctuation program will help control the dense growth of submerged aquatic vegetation in the lake.

The cypress studded lake is owned almost entirely by Cities Service Oil Company. There are two commercial boat liveries on the lake and both have launching facilities for private boats. With the exception of a few people who walk out on the bank to fish, all access to the lake must be by one of the commercial boat docks. No private camps are located on the lake.

Duck hunting is allowed on the lake during duck season except in the far north part of the lake (4th lake). This part of the lake is restricted from public hunting or fishing during duck season by Cities Service Oil Company. All duck hunting is done in privately owned duck blinds. Permission to construct a duck blind has to be obtained from the Cities Service Oil Company office in Fairbanks, Louisiana.

Although this lake has been troubled by dense submerged aquatic vegetation for the past several years, it probably has some of the largest largemouth bass in Louisiana. The best time for bass fishing in this lake is early spring before the vegetation gets very bad. Bass are usually caught along the edges of the vegetation and next to the banks. A topwater plug is good early in the morning and late afternoon while the plastic worm is best during the day.

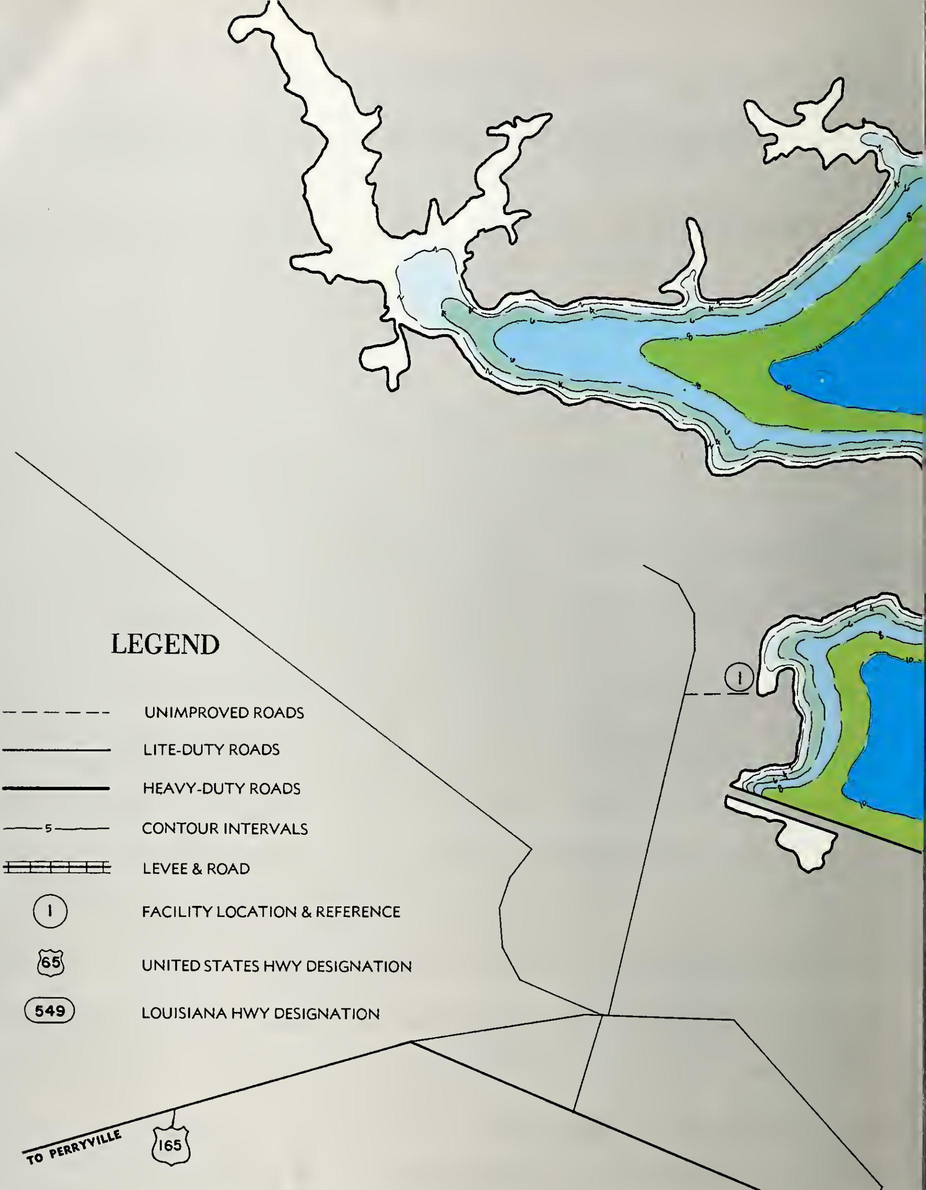
"Bream" and crappie fishing have decreased because of the aquatic vegetation but large concentrations of these fish are often found in holes in the vegetation. Redear (chinquipin) fishing is excellent in early spring during spawning season. They can be caught with small crawfish and grass shrimp while they are on their spawning beds along the bank.

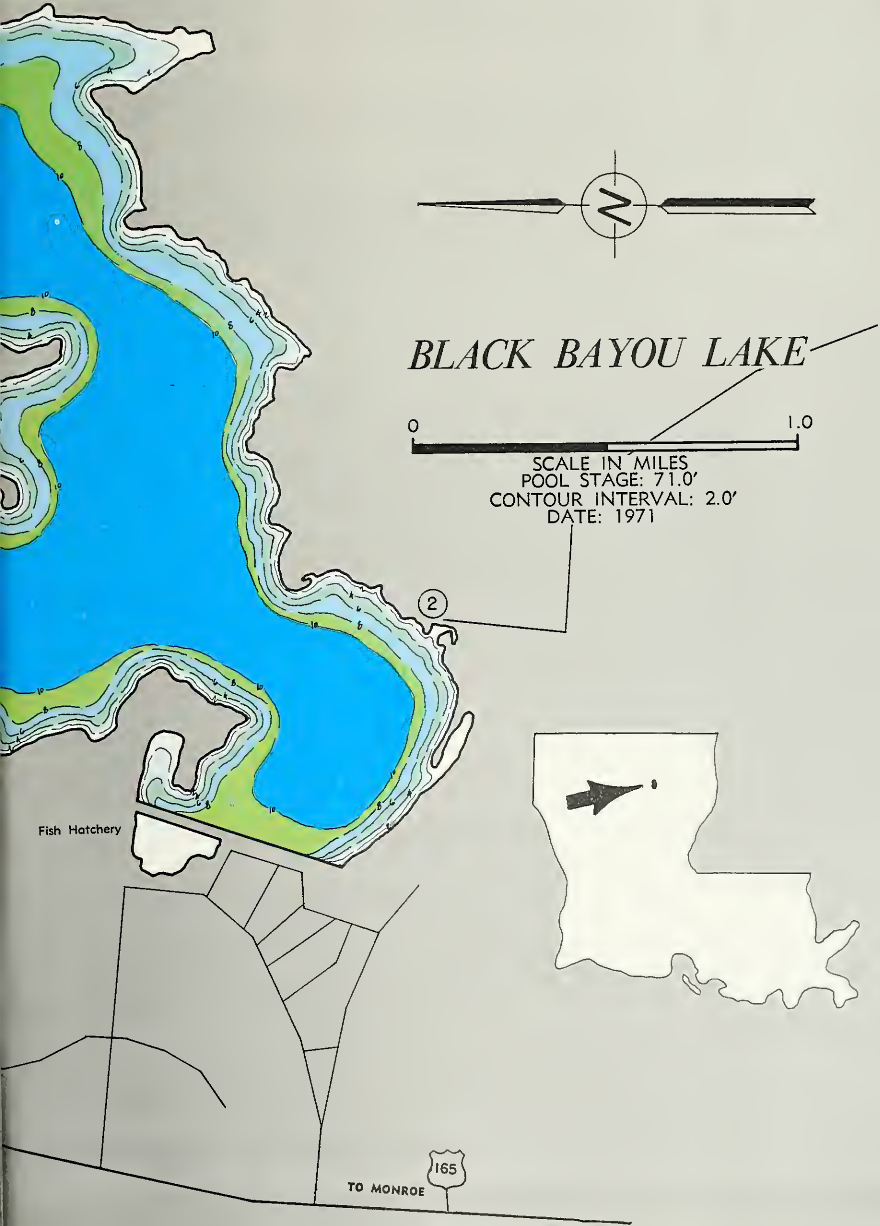
Spear fishing by scuba divers is very popular on this lake since the water is usuallly quite clear. Most of the divers go down in the holes in the vegetation to seek their prey of gar and other commercial fishes. Speed boaters, water skiers and swimmers do not use the lake due to the lack of open water areas and the vegetation problem. Fishing and boating should start to improve after the water level fluctuation program is initiated and the vegetation is brought under control.

In the early spring, the conscientious fisherman can be well rewarded by fishing this lake. If you want to go fishing in Northeast Louisiana, you should try Black Bayou Lake. You may catch a trophy fish.

### BLACK BAYOU LAKE FACILITIES DATA

| LANDING | Boat Launching | Launching Fee | Rental Boats | Boat Storage | Rental Motors | Fuel | Oil | Bait | Guide Service | Refreshments | Rest Rooms | Playgrounds | Ice | Drinking Water | Water | Electricity | Shelters | Tables | Grills | Firewood | Trash Cans | Camping Area | Trailer Space | Cabins |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Paynes Boat Dock | X | X | X | | | | | X | | X | X | | X | X | X | X | | | | | X | X | | |
| 2. Oliver's Boat Dock | X | X | X | | X | | | X | | X | X | | X | X | | X | | X | X | X | X | | | |


LEGEND
UNIMPROVED ROADS
LITE-DUTY ROADS
HEAVY-DUTY ROADS
5
CONTOUR INTERVALS
LEVEE & ROAD
1
FACILITY LOCATION & REFERENCE
65
UNITED STATES HWY DESIGNATION
549
LOUISIANA HWY DESIGNATION
1
TO PERRYVILLE
165


BLACK BAYOU LAKE
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SCALE IN MILES
POOL STAGE: 71.0′
CONTOUR INTERVAL: 2.0′
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Fish Hatchery
165
TO MONROE

# DEATHBEDS FOR RIVERS

by
John Madson

Mr. Madson, one of America's premier outdoor writers, is Director of Conservation for Winchester-Western and has been awarded numerous honors for his articulate treatment of outdoor subjects. He is also the recipient of the highest honor awarded to any member of the Outdoor Writers of America . . . The Jade of Chiefs.

The Obion River loafs peacefully through western Tennessee, meandering down a broad floodplain through bottomland forests. It's only a torn fragment of what it was, but it's still some of the best country in west Tennessee—and it is easy to see why the Obion Bottoms once offered duck gunning that surpassed even the fabled green timber reservoirs of eastern Arkansas.

The Alcovey River in northern Georgia is a lovely, unpolluted flowage through one of the finest remaining river swamps in the Southeast. Its headwater, within 25 miles of downtown Atlanta, is a brooding wilderness of tupelo gum, home of great swamp deer, ducks, [illegible] and the big "canecutter" swamp rabbits that are twice as large as cottontails.

Far away, in northeastern North Dakota, is a region of prairie marshes, potholes and lakes called the "Starkweather Watershed." This watershed, and its adjacent country, holds over 50,000 acres of the finest prairie wetlands and waterfowl habitat left in North America.

All different places, and far apart, but with one thing in common: these good places are either dying, or being sentenced to die.

The Obion is a barren shadow of what it was; much of the river is a sterile ditch, and its broad bottomland forests are vanishing. The Alcovey hangs "in limbo," and may be doomed. The Starkweather is being put to wheat and pasture.

Judge, jury and executioners in all three cases are either the Soil Conservation Service of the U.S. Department of Agriculture, or the U.S. Army Corps of Engineers. Method of execution: an engineering process of "channel improvement" which entails straightening, deepening, and clearing a natural waterway to hasten drainage. Done in the name of flood control, it creates new farmland at the cost of natural, free-flowing streams and wetlands.

The Obion, Alcovey and Starkweather are only three examples of this deepening evil. It's happening everywhere. Since 1954 the SCS has "improved" over 3,000 miles of stream channels—and about 300 projects involving over 8,000 miles of channelization are now under way. The SCS is planning future projects affecting another 12,000 miles of our waterways. Some of these are repair jobs of old channelized projects. But many involve natural drainage that have never been channelized.

State and Federal game and fish agencies bitterly oppose most of this channelization, but lack the political clout to stop it. And there is abundant evidence of the terrible impact that channelization has on fish and wildlife resources.

North Carolina, and other states, have found that game fishes in a channelized stream may decline by 90 per cent.

In the threatened Cache River Basin of northeastern Arkansas—considered the only part of eastern Arkansas with any important remaining game cover—it is estimated that a proposed Corps of Engineers channelization would cause a loss of 75 per cent of all small game in the basin, 79 per cent of the big game, and 60 per cent of the furbearers.

In the famed Atchafalaya Basin of southern Louisiana, a Corps of Engineers drainage project is cutting the heart out of 1,300 square miles of prime hunting and fishing country. Larger than the Okefenokee Swamp of Georgia, the Atchafalaya is a southern wilderness surpassed only by the Florida Everglades.

Two years ago, about 75,000 ducklings were produced in 18,000 acres of wetlands in North Dakota's Starkweather Watershed just north of Devils Lake. Today, an SCS channelization project threatens as much as 40,000 acres of wetlands in and around the Starkweather. That could add up to an annual loss of 150,000 ducklings.

In channelizing, the natural waterway is deepened, straightened and diked, hastening runoff and lowering the water table. It is then possible for landowners to dig lateral canals and drain adjacent lowlands. In a prairie region such as the Starkweather, a new main drainage canal can permit wetlands drainage from over a mile away on either side.

In the South, this means drainage of lowland forests and wholesale cutting. In western Tennessee, channelization has helped wipe out 75 per cent of the floodplain forests. Louisiana loses about 111,000 acres of bottomland forests each year. In Arkansas, 150,000 acres of bottomland timber and wetlands are destroyed annually by some type of channelization; about 90 per cent of that cleared land goes into soybeans which thrive in deep, moist alluvial soils. Of the original 10-million acres of bottomland hardwoods in eastern Arkansas, less than 2-million acres remain.

Young and old find that trip down a clear swift moving stream can be a wonderful experience.

To hunters, such resource-wrecking is of supreme concern, for in much American farm country the best available hunting is in streamside cover, in timbered or flooded bottomlands, and in native marshes. To the boater, camper, fisherman and canoeist, free-flowing streams with timbered banks offer a priceless measure of wildness and freedom.

Yet, the SCS has told Congress that "channel improvement" has "very little adverse impact" on recreation within a watershed, and stated that stream channelization can actually benefit fishing, hunting, boating and canoeing. The belief that such sports could possibly be enhanced by converting a free-flowing natural stream into a straight, featureless, high-banked, barren drainage ditch is a miracle of bureaucratic imagination.

The issue is very complex and involved; last year's congressional hearings on channelization run to four thick volumes.

But it adds up to this: countless rivers, creeks, marshes and hardwood forests are dead, dying or doomed—sacrificed to the almighty dollar and blind economics.

As our streams and rivers go, so goes the cream of our wildlife habitat.

Natural streams are magnets for wildlife. In a desert, the free-running stream offers not only water but also lush streamside cover. And it's no different in humid farm regions where streams and their floodplain thickets are the only good game habitat in deserts of corn, soybeans and cotton.

Today, wherever a free stream runs, through cactus country or cornbelt, it runs under threat of death. In Arizona, where the Army Corps of Engineers and Bureau of Reclamation are stripping riverbanks of cover and ditching the channels, prime habitat of javelina, deer and wild turkey is vanishing. Along the Santa Cruz River alone, as many as 33 species of birds may vanish or be reduced to remnants. Game managers in Missouri, Illinois and Iowa are deeply concerned about stream channelization in farm country where the bottomlands of small streams and rivers hold the best remaining habitat for pheasant, quail, deer, rabbits and other wildlife.

Such "stream improvement" is done in the name of flood control, although it rarely solves the problem. It just passes the problem farther downstream—after transforming fertile natural streams into sterile ditches, and replacing floodplain wildlands with fields of soybeans. Although Government-subsidized channelization is allegedly for flood control only, it often serves to bring more land into farm production—trading natural streams for more surplus crops.

Past stream channelization was often a piecemeal effort by landowners, with little real effect. That began changing in 1944, when the federal Flood Control Act of 1936 was amended to involve the U.S. Army Corps of Engineers in major drainage problems. It was the first time that the Corps had really gotten into drainage work for flood control; until then, most of its flood control work had been limited to levees and dams.

The next blow to our natural streams was dealt in 1954, when the Watershed Protection and Flood Prevention Act put the Soil Conservation Service of the USDA in the same pork-barrel league as the Corps. Known as Public Law 566, that Act authorized the SCS to help local groups plan and carry out programs of flood control and drainage.

A lot of us were happy about P.L. 566, for it promised to improve many project watersheds for fish and wildlife. But the law had a hidden thorn: the cost of such flood control as stream channelization would be paid in full by Uncle Sam, but only half of any fish and wildlife habitat enhancement would be footed by federal funds. Landowners went for the biggest slice of federal subsidy and generally ignored parts of the plan for which they must pay half. Wildlife habitat destruction suddenly became far more attractive than wildlife habitat enhancement.

Armed with P.L. 566 and a pack of political tradegoods, the SCS began to shape new programs. Through the 1950s, with relatively tight reins on federal spending, the SCS did its homework and made plans. But beginning in the early 1960s, federal pursestrings were loosened and the draglines roared into action on the watersheds.

As usual, sportsmen and conservationists were a bit slow in getting their backs up. Before they knew it, mortal injury was being done to natural drainages that they could least afford to lose: farm creeks and streams, prairie wetlands, river swamps, desert streams, trout streams, and countless little flowages that often included the best wildlife habitat in whole districts.

Today, under rising public pressure, the channelizing agencies show signs of modifying their programs. A few states are enacting stiff laws to protect their natural waters, and the federal Environmental Protection Act of 1969 is baring its teeth and forcing the river-wreckers to prove that any loss to a natural stream is really justified

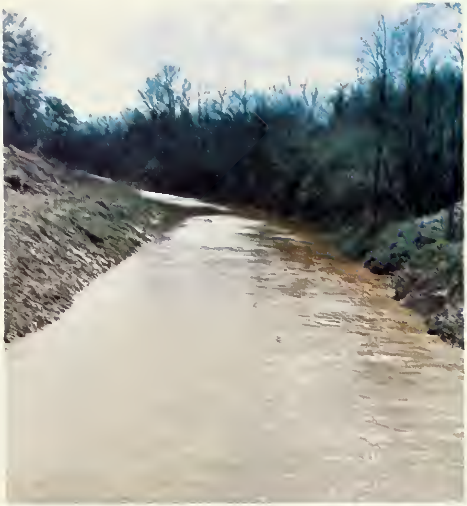
**THIS + THIS**

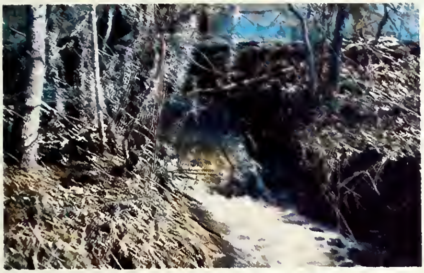
by the gains. Cynical cost-benefit ratios that were based solely on short-term economics, with no heed paid to long-term losses, are no longer acceptable.

Yet, it must be noted that not all channelization is bad. It is sometimes necessary, especially where urban streams flow through residential and industrial areas.

However, channelizing should be the final alternative. Before any actual engineering in a natural streambed, there should be careful weighing of losses and gains—with biologists, as well as engineers and economists, calling the tune. Floodplain zoning should be considered; it may be cheaper and better to let the stream live free in its floodplain instead of making that floodplain safe for soybeans and used-car lots. And even when channelization is the only answer, there are ways to ease its damage to a river system.

Natural streams do more than support wildlife; they **are** wildlife. They are alive and active, changing the land and giving it the features that make a country worth living in—for us as well as the wild creatures that we prize.





# "IMPROVEMENTS"?

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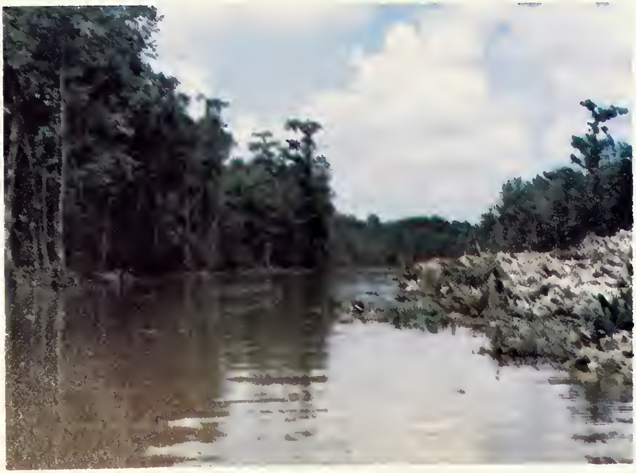
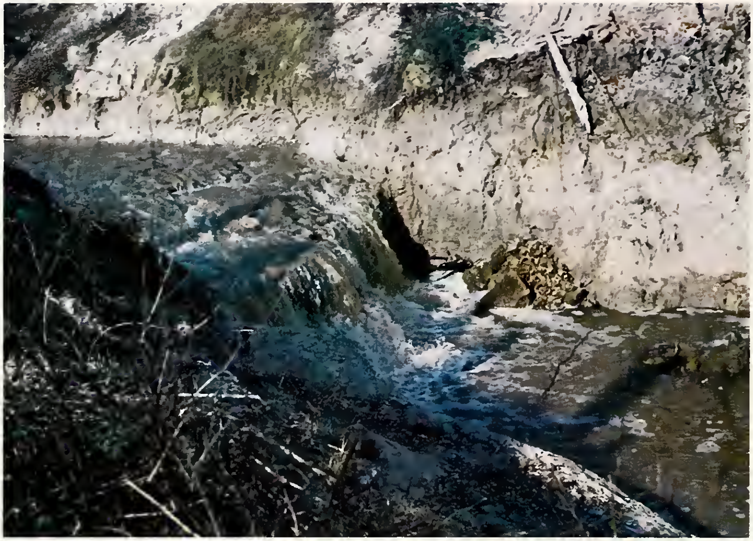




Head ward cutting in a drainage canal causes an erosion process that generates tons of silt which is borne downstream into vaulable fisheries.

Above—Another swamp is almost drained as the water slows to a trickle—Left—Bayou Des Cannes undergoing "improvements".

## HOUSE REPORT CRITICIZES STREAM CHANNELIZATION

A report released 10-1-73 by the House Government Operations Committee scored the Soil Conservation Service (SCS) and the Corps of Engineers for ignoring the often adverse environmental effects of channelizing the Nation's waterways as a means of flood control. The charge is made in the Committee's report, "Stream Channelization: What Federally Financed Draglines And Bulldozers Do To Our Nation's Streams".

The report is based on wide ranging hearings held in 1971 and 1973, as well as comprehensive investigations, by the Committee's Conservation and Natural Resources Subcommittee. Rep. Henry S. Reuss (Wis.), the Subcommittee Chairman, noted that "channelization—or 'channel improvement', as it is often euphemistically called by Corps and the SCS—is an over-used engineering device." He said, "it has severely degraded the wildlife, water quality, recreational, and scenic values of thousands of miles of our Nation's waterways and nearby lands. It has caused widespread resentment among concerned citizens who have seen wetlands drained and wildlife habitat destroyed by the dredge bit and the dragline bucket."

The report also stated that

—Many SCS and Corps guidelines and regulations have been adopted without an opportunity for public scrutiny, and have not been published in the Federal Register, despite Administrative Procedure Act requirements;

—Several large corporations, such as the Weyerhaeuser Company and the L&N Railroad, which have benefited from channelization projects, are not identified as beneficiaries in project reports or environmental impact statements made available to the public and Congress;

—Although, according to the Environmental Protection Agency, channelization "is a major factor in causing the deterioration of water quality by increasing sedimentation, eutrophication, and the accumulation of pollutants", the SCS has often not heeded EPA's water quality recommendations.

—SCS has not fully complied with the requirements of the National Environmental Policy Act of 1969;

—Since 1965, the Interior Department's Bureau of Outdoor Recreation has failed to use its authority to review SCS channelization projects, despite the Bureau's own statement that the effects of channelization on recreational and environmental values "have reached disastrous proportions";

—Delay by the Corps in adopting land acquisition measures, when first recommended by Federal and State wildlife agencies as a means of lessening channelization's adverse environmental impact, has increased Federal land acquisition costs and resulted in the loss of the mitigating lands to other purposes.

# BONNET CARRE '73...

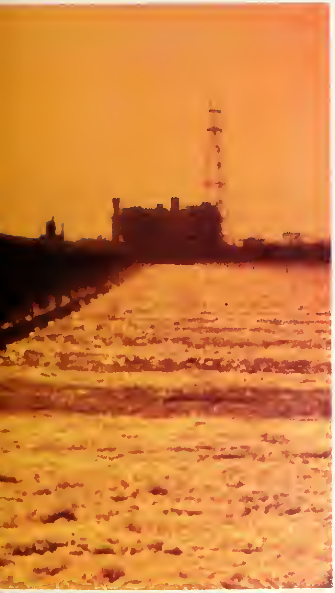
## Catastrophe Or Natural Phenomenon

By
*Johnnie Tarver*
*Biologist; Oyster, Waterbottoms and Seafood Division*
*Photography by Lloyd Poissenot*

In the Spring of 1973, a strange sight was beheld by observers on Interstate 10 between LaPlace and New Orleans—there were actually more motorists pulled over along the shoulder lane than there were moving vehicles on the cherished interstate highway. For the first time in 23 years, the Bonnet Carre Floodway was opened to allow 4.9 trillion gallons of muddy Mississippi River water to flow into Lake Pontchartrain, and this was an ideal spot for watching the ferocious flood waters rip through the spillway. But along with the swirling overflow, came first reaction cries of "destruction" and "disaster" for the aquatic inhabitants.

Prompted by the flood of 1927, construction of the present structure began in 1929 and was completed in 1932. The floodway is located in St. Charles parish about 33 winding river miles north of Canal Street in New Orleans. The width of the opening at the Mississippi River is 7,000 feet with guide levees gradually expanding to 12,400 feet at Lake Pontchartrain, 5.7 miles away.

The floodway functions as a relief valve for diversion of Mississippi River water during flood stages to prevent flooding of the Crescent City and the area south of that point all the way to the mouth of the river. The Flood Control Act of May 15, 1928 provides that the floodway be opened whenever it is necessary to prevent the New Orleans Carrollton gauge from exceeding 20 feet, and on three previous occasions this had indeed been necessary.



The floodway was first opened in 1937 for 39 days, releasing an average of 100 billion gallons of water per day into Lake Pontchartrain. Again, in 1945, the floodway was opened to a discharge of 177 billion gallons per day for 55 days. The Bonnet Carre was used for the third time in 1950 during which an average of 98 billion gallons per day was recorded flowing into the lake. At that time, the gates were open for 36 days. So the 75 days that the floodway remained functioning in 1973 is the longest period of time yet with an average of 82 billion gallons of water pouring through each day. It's hard to get a realistic picture of so vast an amount of water, but for the sake of comparison the volume released into Lake Pontchartrain this past spring was capable of supplying the city of New Orleans with processed water for 100 years at the present usage rate of 136 million gallons per day.

The use of man-made devices such as the Bonnet Carre structure for flood prevention in the Mississippi River delta plain, however, is relatively new. Approximately 5,000 years ago and more recently, 3,000 years ago, the river actually flowed through the Pontchartrain Basin. Active marsh building processes were in effect and narrowed the openings to the Gulf through formation of the Chef Menteur Pass and Rigolets Pass. Before this river delta activity, the Pontchartrain Basin was an open bay supporting a whole complement of marine animals, including oysters, which definitely indicates that the waters were saltier.

As the Mississippi River meandered throughout southeastern Louisiana building marsh, natural and erosion subsidence also occurred. The River and the Gulf may be viewed as opposing natural forces, with one permitting formation of marshes by depositing nutrient-rich sediments and other causing marsh deterioration through erosion. It has been calculated that the river topped its natural levees every 3.6 years. Thus, flooding to Louisiana was a very natural occurrence. In fact, fresh, brackish and saltwater animals attuned their life cycles in anticipation of annual flooding. Many animals evolved into estuarine-dependent species, thereby requiring an area where fresh and saltwater mixed. This area coincided with marsh formation and annual flooding.

In less than 100 years, however, the whole natural system has been gradually modified by man's attempts to throttle the Mississippi River and prevent "destructive" flooding to the rapidly settling populations of people. Although classified by man as catastrophic, to the countless numbers of organisms such a process was welcomed as a natural phenomenon through which the species is propagated. And so the effects of diverting the Mississippi River via the Bonnet Carre floodway into Lake Pontchartrain have been categorized—but never successfully separated—into short and long term benefits and detriments.

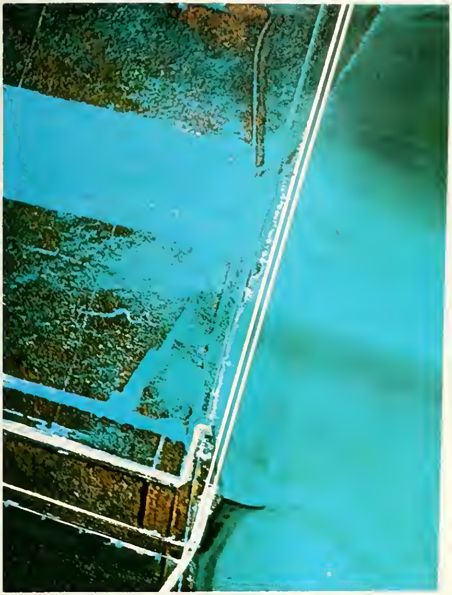
The apparently detrimental and short term effects were the more quickly determined ones, and these were noted by those they affected the most—namely the commercial and sport fishermen.

Marine fishes and crustaceans were driven out of Lake Pontchartrain as the salt water content decreased to a level below their respective tolerances. But the benefits of displacing large populations of crabs, shrimp and fishes were quickly realized. Freshwater catfish were caught in large quantities in and near the floodway, particularly after it was closed. Crabbers and shrimpers harvested an unusually large crop from Lake Borgne. Fishes such as croakers, drums, redfish and speckled trout were also caught in large numbers in the Lake Borgne area. And after closure of the floodway, these commercially important and motile estaurine species journeyed back into Lake Pontchartrain where food was available due to the nutrients added to the system by the Mississippi flood waters.

Soft crab and oyster mortalities were the most serious of the immediately detrimental effects because of the many commercial businesses dependent upon Lake Pontchartrain water. But the dead or dying oysters seemingly lured the shrimp, crabs and fishes into Lake Borgne, which is considerably smaller than Lake Pontchartrain, and the immigration of these species into a concentrated area made them more easily accesible for harvest. Sedimentation may have caused mortality in the case of non-motile species such as the marsh clam. But the area in which there was a heavy, settling silt load was small and the clams not located in that particular area were induced to spawn by the change in temperature and salinity, or assimilated the added nutrients into growth, causing an undoubtedly beneficial effect on clam populations. Also beneficial was the introduction of many freshwater species from the Mississippi River into Lake Pontchartrain. On occasion crayfish, bluegill sunfish, stingrays, croakers, and menhaden were caught in the same sample.

When the floodgates were opened trillions of gallons of swirling water rushed into Louisiana's estuaries.

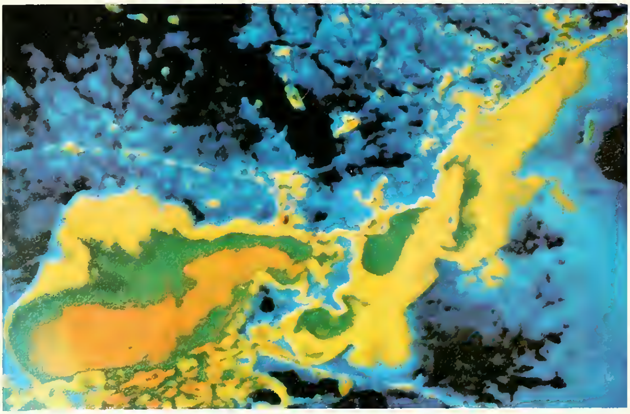
One lone plant stands victoriously in the face of rushing floodwaters as a reminder that nature is deep rooted.



An infra-red imagery photograph (NASA) of the floodway interface (left—Bonnet Carre, right—Lake Pontchartrain, middle—I-10), depicting the pathway of water borne Mississippi River sediment (Photo supplied by Tulane University).

Perhaps we should label the 1973 flooding as an ecological necessity which was historically considered a natural phenomenon that occurred each time the Mississippi River topped its natural levees. Water derived from the Mississippi helped to replenish needed sediment to the Lake Pontchartrain basin, Lake Borgne and the Mississippi Sound and partially counteract present marshland losses. Simultaneously, nourishment to estuarine animals and plants was provided by enriching the water with topsoil drained from one-third of the United States. The nutrient-rich, water-borne sediments will be converted into energy by plants and micro-organisms ultimately resulting in increased fish and shellfish production. The oysters that escaped premature mortality should demonstrate increased growth and reproduction and more importantly a major predator, the oyster drill, will be eliminated temporarily from the oyster reefs in lower Lake Borgne as drills cannot tolerate prolonged periods of low salinity. Fresh water introduction into oyster producing areas on an annual basis would be a great help in the attempt to control the oyster drill, and manage our state's valuable estuarine areas.

In retrospect, we can really look upon the 1973 flood and the relatively brief period in which the Bonnet Carre Floodway was open as a welcomed lapse in time which actually provided additional area for expansion of animal populations and a natural replenishment of valuable nutrients just as the historical "Natural Phenomena" did some 3,000-5,000 years ago.



Lakes Pontchartrain and Borgne as viewed from the ERTS satellite (NASA) with computer interpretation of infra-red imagery demonstrating the outflow and affected areas (Photo supplied by Tulane University).

# WILDLIFE

A gallery of Louisiana Wildlife artifacts, some a century old, are on display in the Louisiana Wild Life and Fisheries Exhibit in the lobby of the Land and Natural Resources Building in Baton Rouge.

The exhibit, entitled "Wildlife Memories," was created and arranged by Wildlife Education Specialist Vincent J. Pizzolato of Plaquemine, owner of many of the pieces. All of the items on display are on loan at no cost to the state by interested conservationists.

Among the items are a 100-year-old pirogue and antique dugout tools as well as many relics of historical significance.

Major emphasis of the display is a focus on the vanishing art of decoy carving, many of which are on exhibit.

The display serves to point out that pollution and conservation of natural resources were issues in Louisiana more than forty years ago.

Also on display are articles concerning government grants in 1933 under the Franklin Roosevelt administration. These describe relief work which involved establishment of concerns for conservation.

Proof that Louisiana forests were once abundant with bears is evidenced by the bear traps on display. Bears from Minnesota have been transported to Louisiana for restocking of the state's decreased bear population.

A swamp scene showing Louisiana swamps and wildlife displays some interesting pieces of cypress sprout formations. The wood shapes are natural formations indigenous to Louisiana cypress swamps.

In addition to the animals and artifacts, copies of several Louisiana Wild Life and Fisheries Commission publicatons are on display.

Vincent J. Pizzolato, Wildlife Education Specialist, created and arranged "Wildlife Memories"

# MEMORIES

FORTY YEARS AGO THEY WERE ALSO TALKING ABOUT NATURAL RESOURCES

*Story and Photography by: Lloyd Poissenot*

# "WE GET LETTERS..."

## GREENISH-BLUE GOOK!

Dear Editor,

I do quite a bit of freshwater and saltwater fishing, and I believe I take good care of my tackle. Nevertheless, no matter what I do I just can not keep that greenish-blue "gook" from forming on my reels and the chrome sections of my rods.

Do you know the stuff I'm talking about? If you do, what in the world is it? And how can I keep it off my tackle?

Any help you can give me would be appreciated.

Thank you,
M. C. Bruscoll
New Iberia, Louisiana

*Dear Mr. Bruscoll,*

*Yes, we know what you are referring to. That greenish1blue gook has plagued anglers since Isaak Walton himself began fishing.*

*Technically, it is an oxide of a sort (a salt oxide in most cases) and is probably just an occupational hazard of fishing.*

*There must be a zillion hints for preventing it from occurring on your tackle, but the best we have found is to (1) remove all of it from your tackle with steel wool, and (2) give the metal parts a light spraying with a good metal protector (like WD-40 or CPC). Of course, washing your tackle with soap and water after each use and re-spraying after each washing is recommended.*

*That's the best we know of.*

*The Editors*

## TEAL, THE FASTEST DUCK?

Dear Editor,

We would like to get the story straight.

One of my waterfowl hunting companions and I have been debating for years the flight speeds of ducks we get here in Louisiana. He says teal are the fastest flyers, but I insist it is the canvasback whose knots-per-hour ranks first.

Who is right? He said he won't believe me until he reads it in the Conservationist. So tell him.

Waiting for an answer,
Percy Travelle
Bunkie, Louisiana

*Dear Mr. Travelle,*

*Here it is in black and white.*

*We have checked multiple sources, both here in the commission and in research papers, and we are happy to tell you that you are right. The canvasback wins!*

*It is a well-spread belief that the teal is the faster flyer in the duck family, but instead of speed this probably is due to the duck's erratic flight pattern and its small size. Biologists say the the canvasback, on the other hand, will take off from the water in a slow, skipping, noisy manner; but his flight speed once he is airborne generally is considered to be the fastest of all ducks. Paced by an airplane, he has been clocked (according to The Hunter's Encyclopedia) at 72 miles per hour!*

*So . . . congratulations, winner.*

*The Editors*

## WILDLIFE ARTIST

Dear Editor,

Being a long-time, avid reader of the Louisiana Conservationist, I have noticed the many illustrations (such as your current Fish Series) by Mr. Duane Raver, Jr.

However, nowhere in the magazine is Mr. Raver's name listed except under his illustrations. He is a very good artist and one would think he would be listed on the mast-page.

Is he on the staff, or is he a freelancer? Just curious.

Sincerely,
Tommy Phillips
Pineville, Louisiana

*Dear Mr. Phillips,*

*Thank you for noticing Mr. Raver and recognizing his work. He is a noted wildlife artist who lives in Cary, North Carolina, and, like Murrell Butler, is a contributor to the Conservationist.*

*Because he is under contractural services and does freelance illustrations for us, he is not listed in the mast. But we, as you do, believe him to be a real asset to our magazine.*

*The Editors*

## DEDICATION AND LOVE!

October 8 ,1973

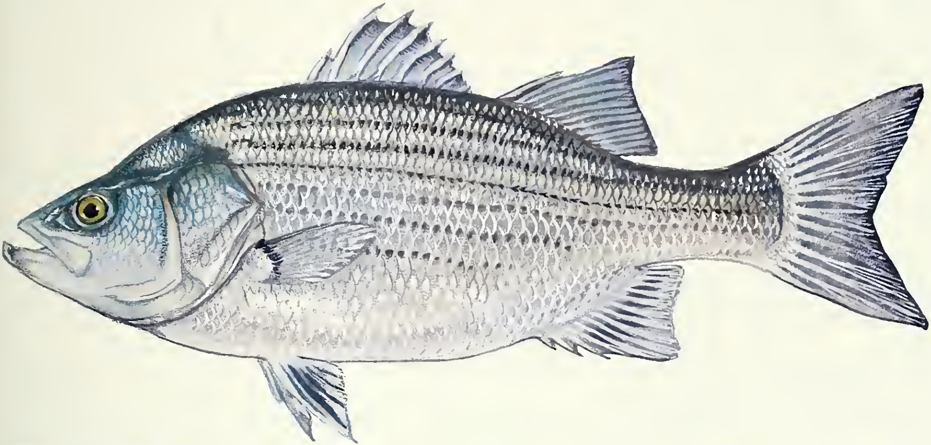
Dear Editor:

I have been getting the Louisiana Conservationist for two years now and enjoy it so very much. I visited Louisiana in April of 1971 and fell in love with it.

But what I am really writing about is the article "Five Days in April" in your July-August issue. The response of the sportsmen was amazing to me. There has to be an awful lot of dedication and love in these men's hearts of Wildlife and Fisheries Commission. They must have a love for their job and the animals that they work with—I just thank God for men like this. I have been a member of the Baltimore County Police Department for thirteen years, but my heart and prayers are with these men of the Wildlife and Fisheries Commission.

I will be thinking and praying for you always.

In Christ name
William H. Cookerly
1458 Barrett Rd.
Baltimore, Md. 21207



**FISH OF LOUISIANA**

ILLUSTRATED BY DUANE RAVER, JR.

# WHITE BASS

Known almost exclusively by its common name of Barfish to Louisiana anglers, the white bass is a fresh water game fish valued for its excellent food-flavor. The scientifically named Morone chrysops (American Fisheries Society, 3rd Edition) is silvery-white in body color with yellow highlights in its fins. It has a moderately compressed body, forked tail, two separate dorsal fins, teeth on the base of the tongue, and seven lateral lines across the body. The mouth is typically basslike, with the lower jaw projecting beyond the upper jaw. The body depth of the white bass is a third the length of the fish and noticeably deeper than its counterpart, the striped bass, which has a long slender body shape.

The Louisiana white bass are usually found in the Atchafalaya and Mississippi rivers, but are extremely migratory. They generally are abundant in lakes and bayous remote from main channels and distributaries during high water stages, leaving when the water levels become lower. However, they can be found throughout the year in main channels, distributaries and lake areas of the lower Atchafalaya Basin.

Sexually mature white bass unite into unisexual schools each spring when water temperatures reach 55 to 60 degrees. The males arrive at the spawning grounds first, and then the fully ripe females arrive. Spawning occurs from April through June at water temperatures ranging from 58 to 75 degrees. Spawning takes place at all hours and the usual duration at each spawning ground is 5 to 10 days. Several males usually accompany each female during the spawning act, and they reportedly spawn in water from 3 to 6 feet in depth. The demersal eggs are scattered at or near the surface and are fertilized as they sink. On an average there are about half a million eggs per female. Growth rates of white bass are rapid, but the life span is relatively short even though they seem to compete with nongame fishes better than many other species of game fish.

Your "luck" in fishing for white bass will be governed largely by their schooling and feeding habits and their reproductive success in the particular area. Their ability to tease the angler with an on-again-off-again nature makes them insurpassable as fresh water game. Studies have indicated that on cloudy days they school and feed near the surface, with crustaceans, large May Fly larvae, gizzard shad and crayfish comprising their diet. On calm, bright days they stay in deep water, moving near the shore into shallow waters at daylight and just before dark to feed in schools. They feed by sight rather than by scent and respond readily to fly and spinner alike. If your preference is live bait, a shiny minnow may also do the trick. Light tackle is suggested most often and a good many anglers are enjoying the good fight this species puts up when taken on about a 4-ounce fly rod.

Most cookbooks offer a variety of methods for the preparation of white bass for the table that will excite the gourmet. But if you favor good old home-style cooking, they are just as tasty fried in a good cornmeal batter or broiled with lemon and butter.

You'll find that the average length of a white bass is about one foot with a weight of 1-3 pounds. The largest Louisiana white bass on record was taken by Sam Parrish and weighed in at 3 pounds 14 ounces. "Field and Stream" magazine records the world record as a 5 pound 5 ounce white bass that was taken in California. So, it seems very likely that in this Sportsman's Paradise of ours there are larger specimens lurking around just waiting to be out-smarted by a good and patient Louisiana fisherman.

Procyon lotor